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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,915	03/05/2002	Konstantin Holdermann	47585/MJM/S969	7688
23363	7590	05/04/2004	EXAMINER	
CHRISTIE, PARKER & HALE, LLP 350 WEST COLORADO BOULEVARD SUITE 500 PASADENA, CA 91105			AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 05/04/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/090,915

Applicant(s)

HOLDERMANN, KONSTANTIN

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

The amendment filed 2/17/04 is sufficient to overcome the rejections based on the Okunaka et al (4,643,913). Accordingly, the rejections based on Okunaka et al of the previous office action are withdrawn.

Regarding Bailey et al (4,137,123), Applicant argues that isopropanol and ethylene glycol are not functionally equivalent because they are producing essentially opposite results in silicon texture etching.

In response to the applicant's argument, examiner stats that both the isopropanol and the ethylene glycol are preferably used during the texture etching of silicon (see the rejection).

Therefore, they are functionally equivalent in texture etching of silicon.

Furthermore, applicant does not show any experimental evidence that the combination of isopropanol and ethylene glycol as described in the office action, will provide adverse effect on the silicon substrate or will form an inactive etching solution.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al (4,137,123).

Bailey et al (Bailey) disclose a pyramidal texture etching of a silicon surface and the composition of a surface etchant includes aqueous solution of alkali metal hydroxide such as potassium hydroxide, isopropyl alcohol or ethylene glycol (col.2, lines 3-11).

Bailey fails to teach or disclose that isopropanol and ethylene glycol both can be introduced simultaneously.

However, Bailey teaches that either isopropanol or ethylene glycol can be added to the etching solution for the same purpose.

Therefore, it would have been obvious to one skill in the art to add both or a mixture of isopropanol and ethylene glycol into the etchant composition because both of them are functionally equivalent as taught by Bailey for the same purpose.

Furthermore, it has been held that it is prima facie obvious to combine two compositions each taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. See *In re Kerkhoven*, 205 USPQ 1069, 1072.

As to claims 2 and 8, Bailey discloses that silicate can be introduced into the etchant (col.2, lines 3-31 and lines 38-45).

4. Claims 1-5, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al (USP 4,137,123) in view of Uchimura et al (5,165,957).

As to claims 1 and 7, the preamble of the claim has not given patentable weight

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because the recitation of "the wet chemical pyramidal texture etching of silicon surface" occurs in the preamble as an intended use of a composition and the body of the claim does not depend on the preamble for completeness. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Bailey et al (Bailey) disclose a pyramidal texture etching of a silicon surface and the composition of a surface etchant includes aqueous solution of alkali metal hydroxide such as potassium hydroxide, isopropyl alcohol or ethylene glycol (col.2, lines 3-11).

Bailey fails to teach or disclose that isopropanol and ethylene glycol can be introduced simultaneously or in combination of both.

However, Uchimura et al teach that mixture of isopropanol and ethylene glycol can be used as suitable solvent in a composition, which is used for semiconductor substrate processing (col.1, lines 11-20 and col.3, lines 23-29).

Therefore, it would have been obvious to one skill in the art to employ Uchimura et al's teaching of addition of both or a mixture of isopropanol and ethylene glycol into Bailey's composition for uniform dispersion of chemical constituents in the composition because both of them are functionally equivalent solvent as taught by Uchimura et al.

As to claims 2 and 8, Bailey discloses that silicate can be introduced into the etchant (col.2, lines 3-31 and lines 38-45).

As of claims 3 and 9, Bailey teaches that isopropanol or ethylene glycol can be 0 to 75% by volume (col.2, lines 6-8).

As to claims 4-5 and 10-11, it would have been obvious to one skill in the art to optimize, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

5. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al (4,137,123) in view of Uchimura et al (5,165,957) as applied to claims 1-5, 7-11 above, and further in view of Applicants admitted prior art.

Modified Bailey et al discussed above in the paragraph 4 but fails to teach that the aqueous alkaline ethylene glycol is reacted with oxygen.

However, Applicant admits that it is well known that aqueous alkaline ethylene glycol is advantageously reacted with oxygen (see, specification page 1, lines 24-page 2, line 3 and page 3, lines 24-29).

Therefore, it would have obvious to one having ordinary skill in the art at the time of claimed invention to employ Applicant's admission into modified Bailey's teaching because it is admitted to be known in the art for forming uniform pyramids by aerating the etching solution with oxygen as taught by Applicant's admitted prior art.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shamim Ahmed  
Examiner  
Art Unit 1765

SA  
April 26, 2004

**NADINE G. NORTON**  
**SUPERVISORY PATENT EXAMINER**  
